

TRADE SECRET

Study Title

H-25134: Influence on Growth and Growth Rate of the Green
Alga Selenastrum capricornutum

Laboratory Project ID: DuPont-8863

AUTHOR: Terry Lee Sloman, B.S.

STUDY COMPLETED ON: January 4, 2002

PERFORMING LABORATORY: E.I. du Pont de Nemours and Company
Haskell Laboratory for Health and Environmental Sciences
Elkton Road, P.O. Box 50
Newark, Delaware 19714-0050

[REDACTED]
[REDACTED]

Company Sanitized. Does not contain TSCA CB1

CERTIFICATION

I, the undersigned, declare that this report provides an accurate evaluation of data obtained from this study.

Issued by Study Director:

Terry Lee Sloman
Terry Lee Sloman, B.S.
Associate Scientist

04-JAN-2002
Date

Company Sanitized. Does not contain TSCA CBI

STUDY INFORMATION

Substance Tested: [REDACTED]

Synonyms/Codes: [REDACTED]

H-25134

Submitter's Notebook Number(s): [REDACTED]

Haskell Number: 25134

CAS Registry Number: [REDACTED]

Composition: [REDACTED]

Purity: [REDACTED]

Known Impurities: [REDACTED]

Physical Characteristics: Dark brown solid

Stability: The test substance appeared to be stable under the conditions of the study; no evidence of instability was observed.

Sponsor: E.I. du Pont de Nemours and Company
Wilmington, Delaware 19898
U.S.A.

Study Initiated/Completed: December 12, 2001 / (see report cover page)

In-Life Initiated/Completed: December 12, 2001 / December 15, 2001

Company Sanitized. Does not contain TSCA CER

SUMMARY

A study was conducted to determine the effect of H-25134 on the growth and growth rate of the green alga *Selenastrum capricornutum*. The algae were exposed to nominal concentrations of 0.01, 0.1, 1, 10, 100, and 1000 mg H-25134/Liter of nutrient medium (ppm).

The algae were exposed for 72 hours (3 days) without test medium renewal. The effect was expressed as percent inhibition in growth based on healthy cell count (also referred to as cell density) relative to the blank (culture medium) control for the 72-hour (day 3) interval of the test.

The 72-hour EC_{50} and the $NOEC^a$ based on nominal concentrations are as follows:^{b,c,d}

Healthy Cell Count

EC_{50}	>1000 mg/L
$NOEC$	>1000 mg/L

H-25134 exhibited low concern^e under TSCA in a 72-hour, acute test using the green alga *Selenastrum capricornutum*.

-
- a The EC_{50} is defined as the "effective concentration" producing a 50% inhibition of growth relative to the control. The $NOEC$ is defined as the highest concentration of test substance that has no significant effect on the measured parameter relative to the control.
- b BBN Software Products Corp., (1998). An RS/1[®] RPL procedure conducting Williams' test and probit analysis.
- c McCullogh, L.P. and Nelder, J.A. (1989). *Generalized Linear Models*, 2nd edition, Chapter 9, pp 328. Chapman and Hall, London.
- d Snedecor, G.W. and Cochran, W.G. (1967). *Statistical Methods*, 6th edition, Table A4, pp 469. The Iowa State University Press, Ames.
- e Smrcek, J., Clements, R., Morcock, R., and Rabert, W. (1993). Assessing ecological hazard under TSCA: methods and evaluation of data. *Environmental Toxicology and Risk Assessment, ASTM STP 1179*. (W.G. Landis, J.S. Hughes, and M.A. Lewis, Eds.), pp 22-39. American Society for Testing and Materials, Philadelphia.

Company Sanitized. Does not contain TSCA CBI

RESULTS

Based on visual observations, the blank (normal culture medium) control solution had no color before addition of algal cells. However, the 0.01, 0.1, 1, 10, 100, and 1000 mg/L test solutions contained undissolved test substance before addition of algal cells. After the addition of algal cells, the test and blank control flasks were placed on a shaker table in a chamber with a temperature of approximately 25°C. The algae were incubated for 72 hours (3 days) without medium renewal. Illumination was supplied by cool-white fluorescent tubes. The mean light intensity in the chamber was 8066 lumens/m² (= lux). The shaking speed was 105 revolutions per minute (rpm). The pH measurement of the culture medium was approximately 7.5 at study start. The pH measurements of the definitive test solutions at test initiation ranged from 7.44 to 7.81, and at test termination ranged from 7.78 to 8.02.

~~Company Name~~ Does not contain TSCA CBI

TABLES

Company Sanitized. Does not contain TSCA

TABLE 1
pH MEASUREMENTS OF TEST SOLUTIONS

Nominal Concentration (mg/L)	Test Initiation (0 hours)	Test Termination (72 hours)
	pH	pH
Blank Control	7.44	7.78
0.01	7.78	7.86
0.1	7.81	7.97
1	7.77	7.84
10	7.68	7.91
100	7.65	7.87
1000	7.67	8.02

Company Sanitized. Does not contain TSCA CB

TABLE 2
DATA SUMMARY

Nominal Concentration	Day 0 Healthy Cell Count (cells/mL)	Day 3 Healthy Cell Count (cells/mL)
Blank Control		
Replicate 1	10,000	2,100,000
Replicate 2	10,000	2,420,000
0.01 mg/L		
Replicate 1	10,000	1,970,000
Replicate 2	10,000	2,270,000
0.1 mg/L		
Replicate 1	10,000	2,310,000
Replicate 2	10,000	2,010,000
1 mg/L		
Replicate 1	10,000	1,940,000
Replicate 2	10,000	1,450,000
10 mg/L		
Replicate 1	10,000	1,800,000
Replicate 2	10,000	1,870,000
100 mg/L		
Replicate 1	10,000	2,750,000
Replicate 2	10,000	2,470,000
1000 mg/L		
Replicate 1	10,000	2,040,000
Replicate 2	10,000	1,790,000

Company Sanitized. Does not contain

APPENDIX

Company Sanitized. Does not contain TSCA CBI

APPENDIX A

72-Hour Healthy Cell Count Statistics

Company Sanitized. Does not contain TSGA 6B1

72-HOUR HEALTHY CELL COUNT STATISTICS

WILLIAMS TEST OF #@ALGAE@SCREEN@H25134 72 Hr Healthy Cell Count (#cells/mL)

W.T. Rank	Dose	Mean Response	Std Error	Transform Mean	Transform Std Error	n	$\hat{m}$	$\bar{t}$
0	0.00	2260000	160000	6.353017	0.030798	2		
0	0.01	2120000	150000	6.325246	0.030780	2	6.329325	0.488792
0	0.10	2160000	150000	6.333404	0.030208	2	6.329325	0.488792
0	1.00	1695000	245000	6.224585	0.063217	2	6.301386	1.065206
0	10.00	1835000	350000	6.263557	0.008285	2	6.301386	1.065206
0	100.00	2610000	140000	6.416015	0.023318	2	6.301386	1.065206
0	1000.00	1915000	125000	6.281242	0.028389	2	6.281242	1.480793

W.T.
Rank $\bar{t}$ crit.

0	
0	1.895
0	2.002
0	2.039
0	2.058
0	2.069
0	2.076

One-sided test at the 95% CL for a decreasing trend.
Common logarithm transformation, i.e. $Y = \log_{10}(X)$, applied to the data.
MSE = 0.002349 with 7 df.
Ref: Williams, D. A. Biometrics 28: 519-531 (1972).

Company Sanitized. Does not contain TSCA CBI